Delce Infant & Nursery Calculations Policy

Addition		
Foundation	**Year 1**	**Year 2**

Foundation

Children begin to add/count on mentally using rhymes and begin to record in the context of play or practical activities up to twenty e.g; Recording with marks, stamps or objects. Children interpret and explain their findings.
How many ways can you put 5 apples in 2 bowls.

Combine 2 groups of objects to find a total.

Use the language of 1 more by adding one to a group e.g tower of cubes, people on a bus etc.

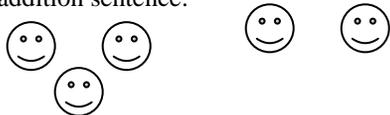Adding stories and role play, encouraging use of language for addition.

9 and I more is 10
9 add I equals 10
9 + I = 10

Use a numbered large number lines (number tiles) to identify one more.
Children combine 2 groups of objects. Through practical activities and picture representation of an addition sentence.

Year 1

Adding by counting on. First by finding 1 more than in steps of 1.

5 and I more is? 6
5 and 2 more is? 6,7
5 and 3 more is? 6,7,8

count on one, two or three
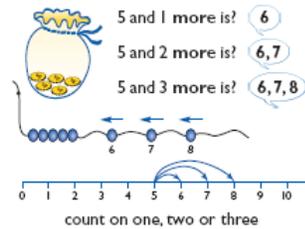
Children can count on from the first number using fingers, objects, themselves etc.

$2+5=7$ 2 count on 5
$5+2=7$ 5 count on 2

Teacher should model drawing jumps on the numbered number line to support understanding of the mental method.

Learn that addition can be done in any order and are taught that it is more efficient to put the larger number first.

Children need to understand the concept of equality before using the = sign. Calculations should be written either side of the equality sign so that the sign is not just interpreted as the 'answer'. E.g. $2 = 1+1$ and $2+3 = 4+1$

Children begin to record addition number sentences using + and =.

Missing numbers need to be placed in all possible places within the number sentence.
$4 + \square = 7$
$\square + 2 = 8$
Also cover up operations as well as numbers.

Year 2

Children add single digit numbers mentally.

Children learn to count on in tens and ones on the number line.

Add 9 and 11 by adding 10 and adjusting by 1.

Children add 2 digit numbers on the hundred square by counting on in tens down the hundred square and then across in ones.

They then draw blank number lines and draw how many they are counting on by adding tens first and then units.
$23+15$
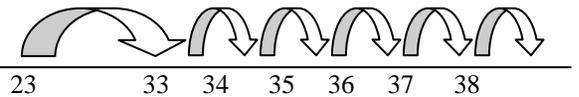
23   33   34   35   36   37   38

Continue with using a range of equations as in year 1, but with larger numbers such as multiples of 10.

$70 + \square = 20 + \square$

Children begin to round up to the nearest multiple of ten.

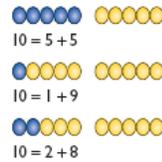Find the difference by counting on with larger numbers on the number line.

3   and   2   makes   5

Children can place numerals to twenty in order using digit cards or mark making.
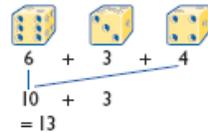

$3 + \square = 5$

Use addition in terms of 'how many more' to calculate the difference.

Children learn number bonds to10.

$10 = 5 + 5$

$10 = 1 + 9$

$10 = 2 + 8$

Children begin to add 3 single digit numbers, by looking for pairs of numbers or doubles to aid mental calculation.

6   +   3   +   4

10   +   3
= 13

Children are taught to use the hundred square to find 10 more by looking at the number underneath and understanding that this is the same as counting along 10 squares.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Children begin to learn place value of 2 digit numbers to add in tens and ones.
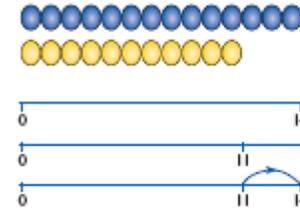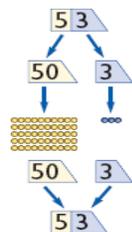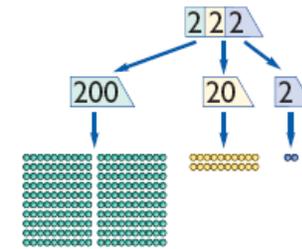

The difference between 11 and 14 is 3.
$14 - 11 = 3$
$11 + \square = 14$

Know that subtraction is the inverse of addition and use known number facts to calculate mentally.

$20 = 12 + 8$ $8 + 12 = 20$
$20 - 8 = 12$ $20 - 12 = 8$
$(10 + 2 + 8 = 10 + 10 = 20)$
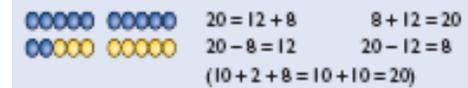
Begin to add by bridging through 10 where necessary.

Children begin to add larger 3 digit numbers by partitioning and re-combining into hundreds, tens and ones.

$12 + 27 = 10 + 20 = 30$
$= 2 + 7 = 9$
$= 30 + 9 = 39$

extend to
$112 + 27 = 100 + 10 + 20 = 130$
$= 2 + 7 = 9$
$= 139$

Subtraction

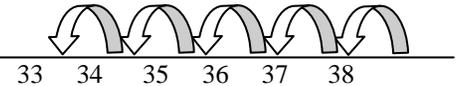| Foundation	Year 1	Year 2
Begin to record in the context of play or practical activities e.g; counting rhymes that count back. Remove objects from a group 'I have 5 apples and a take one away how many are left?' Use the language of 1 less by taking 1 from a group e.g tower of cubes, taking people off a bus. In take away stories such as role play encouraging use of language of subtraction. I less than 10 is 9 10 subtract 1 equals 9 10 – 1 = 9 Use a numbered, large number line (floor tiles) to identify one less. Picture representation of an subtraction sentence 5 take away 1 leaves 4	Counting back in steps of 1 then 10. Identify missing numbers in a number line. Adding by counting back. First by finding 1 less then in steps of 1. Children can count back 1 from the first number using fingers, objects, themselves etc. Teacher should model drawing jumps on the numbered number line to support understanding of the mental method. Learn that subtraction must start with the larger number and count back the smaller number. Children begin to record subtraction number sentences using - and =. Missing numbers need to be placed in all possible places within the number sentence. 5 – □ = 3 □ – 2 = 3 Also cover up operations as well as numbers. Children should be taught to find the difference using subtraction.	Children subtract single digit numbers mentally. Children learn to count back in tens and ones on the number line. Subtract 9 and 11 by subtracting 10 and adjusting by 1 using the hundred square. Children subtract 2 digit numbers on the hundred square by counting back in tens up the hundred square and then back in ones. They then draw blank number lines and draw how many they are counting back. 38 - 5 33 34 35 36 37 38 This would then progress to jumping in tens then ones. Subtract by bridging through 10 where necessary. E.g. 47 – 9 = 47 – 7 = 40 40 – 2 = 38 Continue with using a range of equations as in year 1, but with larger numbers such as multiples of 10. 100 - □ = 40 Find the difference by counting on with larger numbers on the number line.

The difference is?

8- 5=3

Children are taught to use the hundred square to find 10 less by looking at the number above, understanding that this is the same as counting back 10 squares.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100
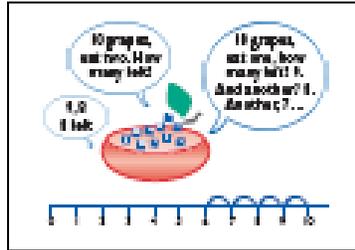
Children begin to subtract to solve simple word problems.

If 4 get eaten, how many left?

Begin to recognise that subtraction is the inverse of addition.
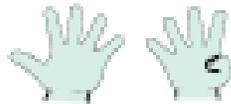
The difference between 11 and 14 is 3.
$14 - 11 = 3$
$11 + \square = 14$

Know that subtraction is the inverse of addition and use known number facts to calculate mentally.

$20 = 12 + 8$ $8 + 12 = 20$
$20 - 8 = 12$ $20 - 12 = 8$
$(10 + 2 + 8 = 10 + 10 = 20)$

Children begin to subtract larger 2 digit numbers by partitioning the second number only.
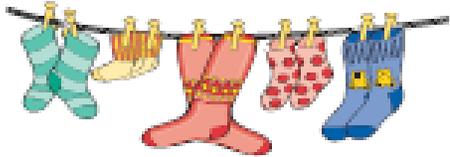
$37 - 12 = 37 - 10 = 27$
$= 27 - 2$
$= 25$

Multiplication

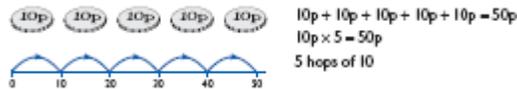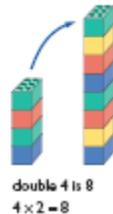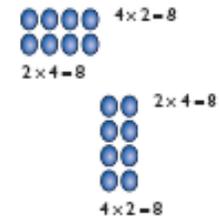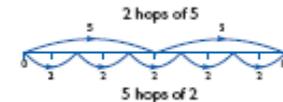| Foundation	Year 1	Year 2
Children count related groups of the same size in games and practical activities. Links are also made to problem solving activities. Children solve problems practically including doubling.	Children group objects in 2, 5 and 10. Children start to use visual images as repeated addition. $2 + 2 + 2 + 2 + 2 = 10$ Model this as jumps on a number line. Practically double numbers to 10 and link this with multiplying by 2. double 4 is 8 $4 \times 2 = 8$ Solve practical problems involving multiplication such as; There are 4 bikes. Each bike has 2 wheels, how many wheels is that? This would be solved practically or by drawing a picture.	Children use repeated addition number sentences to calculate multiplication; $4x3 = 3+3+3+3$ Begin to show visual representation of this using an array. Explore the fact that multiplication, like addition, can be done in any order. Children are taught to calculate multiplication questions by jumping in groups on a number line. Children begin to record multiplication number sentences using x and =. They are then taught to develop an understanding of the families of numbers to work out the missing numbers e.g. ☐ X ◯ = 15 4 x ☐ Use multiplication to solve more complex word problems.

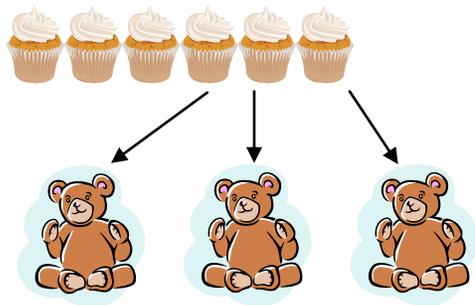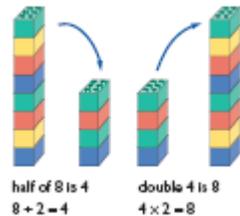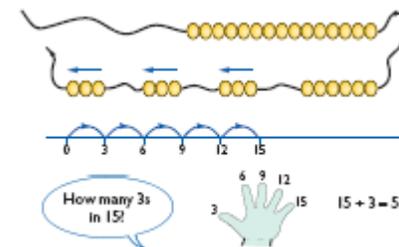| Division		
Foundation	**Year 1**	**Year 2**
Practical division as grouping / sharing e.g. buttons, beads etc. E.g I have 10 beads how many children can have 5 each? Children share objects practically into equal groups e.g; "Share the cakes between the three bears. How many cakes will they each have?" Links are made to problem solving activities. 	Halving to match doubling and understand it is the opposite. half of 8 is 4 double 4 is 8 $8 \div 2 = 4$ $4 \times 2 = 8$ Sort a set of objects by grouping equally into 2's, 3's, 4's etc. Begin to use practical grouping to solve word problems. e.g. "There are 12 daffodil bulbs. Plant 3 in each pot. How many pots are there?"	Children begin to relate division to fractions of numbers and shapes – e.g. ½ and ¼ is the same as dividing by 2 and dividing by 4 respectively. Children continue to use grouping of objects practically and relate to real life situations. Progressing to grouping numbers into equal sets with a remainder. Introduce division as repeated subtraction. Then begin to divide a number by counting back in equal steps model this on a number line. How many 3s in 15? $15 \div 3 = 5$ Children begin to record their practical division as a written calculation using $\div$ and $=$ in a number sentence. Children learn that division is the inverse of multiplication. They are then taught to use the multiplication and division facts to work out missing numbers. e.g; $12 \div \boxed{} = 4$ Children use division to solve more complex word problems.